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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,051	08/19/2003	Haifeng Wang	944-005.017	5140

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EXAMINER	
PATHAK, SUDHANSHU C	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/644,051	WANG ET AL.	
	Examiner	Art Unit	
	Sudhanshu C. Pathak	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,8,11-14,16 and 17* is/are rejected.

7)☒ Claim(s) *6,9,10,15,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-19 are pending in the application.

Specification

2. The disclosure is objected to because of the following informalities:

The disclosure uses the acronym(s) "SUI" and "ISU" interchangeably; it is recommended that only a single acronym be used so as to clarify what terms are identified by the acronym.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 (method) & 11 (apparatus) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamoto et al. (2003/0235240) in view of Blessent (2003/0021333).

In regards to Claims 1-2 & 11, Kawamoto discloses a method (apparatus) of a blind speech user interference cancellation (SUIC) for a high speed downlink packet access (HSDPA) comprising the steps of: receiving an input signal in a discrete-time domain by a receiving means of a blind SUIC receiver (Fig. 9, elements 110-112) {Interpretation: The reference discloses receiving a CDMA signal and wherein it is inherent that the demodulation and dispreading includes a digitizing (discrete-time

domain) the received signal}; and separating the input signal to a desired HSDPA signal with known spreading codes and to an interfering speech user signal with unknown spreading codes using a Walsh correlator of the blind SUIC receiver for further processing (Fig. 9, element 117 & Page 4, Paragraphs 57-58) {Interpretation: The reference discloses performing correlations between the stored walsh codes and the received walsh code (desired code) wherein the correlation between the stored walsh code which is the same as the received walsh code is interpreted as a known spreading code and the walsh codes not the same as the received spreading code are interpreted as unknown spreading codes. This is analogous to the instant application wherein the desired or transmitted spreading code is the known spreading code and the undesired or codes not transmitted spreading codes are the unknown spreading codes. Thus, the desired signal is separated from the undesired signals, since the maximum correlation value refers to the desired (transmitted) signal}. However, Kawamoto does not explicitly disclose a storing means for storing the received signal and the correlation between the unknown spreading codes and the received signal is interference.

Blessent discloses a receiver in a spread spectrum communication system (Fig. 2) comprising a storing means (memory) for storing the received signal (Fig. 2, element 202). Blessent further discloses a estimating noise by performing a correlations between the received walsh code and the walsh codes not received (Paragraph 17, lines 3-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Blessent teaches a storing means for

storing the received signal and the correlation between the unknown spreading codes and the received signal is interference and this is implemented in the receiver so as to store the received signal and estimate and isolate the noise so as to more reliably decode the desired signal.

5. Claims 3-5, 7-8 (method) & 12-14, 16-17 (apparatus) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamoto et al. (2003/0235240) in view of Blessent (2003/0021333) and further in view of Schmidl (6,816,541).

In regards to Claims 3-5, 7-8, 12-14 & 16-17, Kawamoto in view of Blessent discloses a method of blind speech user interference cancellation as described above. Kawamoto further discloses the receiver to be a blind receiver output (Paragraph 56) {Interpretation: The reference discloses a receiver for recovering the transmitted signal without knowing the transmitted spreading code}. However, Kawamoto in view of Blessent do not disclose generating a soft-decision HSDPA signal from the desired HSDPA signal using a one-stage soft-decision parallel interference cancellation (SD-PIC) receiver.

Schmidl discloses a parallel interference cancellation estimator based on one-stage soft-decision (Abstract, lines 1-4 & Column 12, lines 14-51 & Column 13, lines 18-21, 26-30) {Interpretation: The reference discloses implementing a one-stage soft-decision parallel interference cancellation}. Schmidl further discloses generating an adjusted signal by subtracting the interference from the input signal using an adder (Fig. 1, element "adder" & Column 6, lines 35-43, 49-51 & Column 11, lines 8-13, 42-47). Therefore, it would have been obvious to one of ordinary skill

in the art at the time of the invention that Schmidl teaches implementing a one-stage soft-decision parallel interference cancellation and this is implemented in the receiver as described in Kawamoto in view of Blessent, thus providing a reliable received signal with minimal implementation (computational) complexity and provide a economical and reliable receiver.

Allowable Subject Matter

6. Claims 6, 9-10, 15, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is 571-272-5509. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3041.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.